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- I. Model Problems
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Web Resources


Complex Numbers

www.mathwarehouse.com/algebra/complex-number/home.php

Add Complex Numbers

 www.mathwarehouse.com/algebra/complex-number/how-to-add-complex-numbers.php

Subtracting Complex Number

 www.mathwarehouse.com/algebra/complex-number/subtracting-complex-numbers.php

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Addition and Subtraction of Complex Numbers

Addition and subtraction of complex numbers follow the same rules as combining like terms.

I. Model Problems

In these examples you will add and subtract complex numbers.

Example 1: $(2 + 15i) + (18 + 4i)$

Group the real part of the complex number and the imaginary part of the complex number.

Simplify.

Answer: $20 + 19i$

$$\begin{aligned}(2 + 15i) + (18 + 4i) \\ (2 + 18) + (15i + 4i) \\ 20 + 19i\end{aligned}$$

Example 2: $(8 - 15i) - (10 - 3i)$

Distribute the negative.

Group the real part of the complex number and the imaginary part of the complex number.

Simplify.

Answer: $-2 - 11i$

$$\begin{aligned}(8 - 15i) - (10 - 3i) \\ 8 - 15i - 10 + 3i \\ (8 - 10) + (-15i + 3i) \\ -2 + (-12i)\end{aligned}$$

II. Practice Problems

Simplify.

1. $(3 + 4i) + (6 + 7i)$
2. $(16 - 3i) + (4 + 2i)$
3. $(18 + 7i) + (-3 + 16i)$
4. $(-12 - 4i) + (-10 - 3i)$
5. $(-8 + 3i) + (-7 - 2i)$
6. $(-63 - 17i) + (44 + 17i)$
7. $(-2 + 15i) + (2 - 15i)$
8. $(45 - 3i) + (-18 - 7i) + (-27 + 16i)$
9. $(3 - 17i) + (16 + 5i) + (-4 + 2i)$
10. $(14 + 26i) - (7 + 3i)$
11. $(24 + 16i) - (15 + 4i)$
12. $(-144 + 12i) - (24 + 16i)$
13. $(14 - 3i) - (20 + 2i)$
14. $(-24 - 6i) - (-28 + 6i)$
15. $(-12 + 4i) - (-12 + 4i)$
16. $(3 - 20i) - (14 + 6i) - (8 - 2i)$
17. $(13 + 14i) - 12 - 3i - (25 - 6i)$
18. $(-7 + 4i) - (3 - 2i) - (-12 + 2i)$
19. $(20 + 2i) - (4 - 6i) - (-12 + 3i)$
20. $(142 - 72i) - (-16 + 12i) - (115 - 8i)$
21. $(17 - 14i) + (3 + 6i) - (12 + 10i)$
22. $(14 + 3i) - (-12 - 7i) + (6 + 2i)$

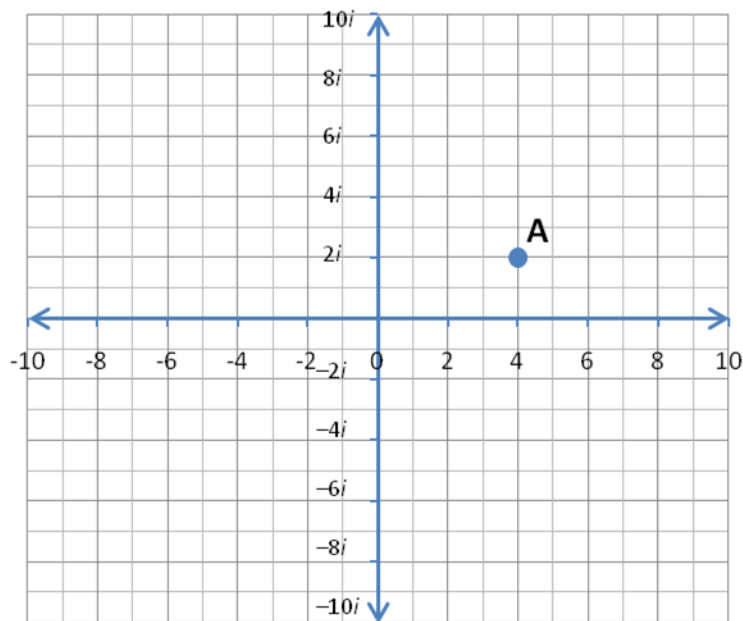
23. $(15 - 2i) + (6 + 27i) - (14 + 3i)$
24. $(-8 - 27i) - (-4 - 3i) + (16 + 10i)$
25. $(-23 + 16i) + (14 - 2i) - (3 + 2i) - (-27 - 6i)$

III. Challenge Problems

1. Find the error in the student's work.

$$\begin{array}{r}
 (16 - 3i) + (4 + 2i) \\
 20 - i^2 \\
 20 - (-1) \\
 20 + 1 \\
 21
 \end{array}$$

2. Write a rule for adding complex numbers.
3. A complex number can be graphed on a Cartesian style of plane. The horizontal axis represents the Real part of the complex number, and the vertical axis represents the imaginary part of the complex number. The point $A = 4 + 2i$ is graphed below. Graph the point $B = (4 + 2i) + (3 + 2i)$.



4. Find a and b if $(6 + 3i) + (14 - 7i) - (a + bi) = 0$.

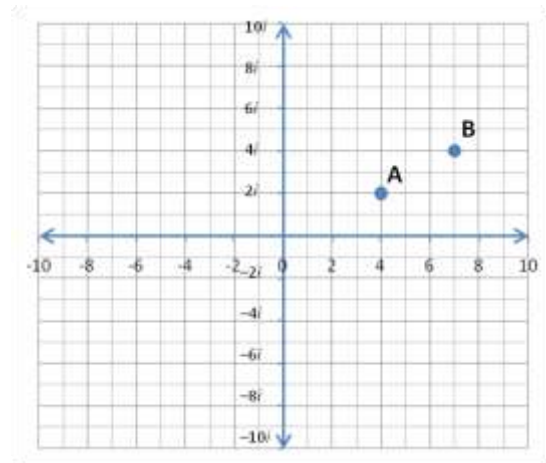
III. Answer Key

1. $9 + 11i$
2. $20 - i$
3. $15 + 23i$
4. $-22 - 7i$
5. $-15 + i$
6. -19
7. 0
8. $6i$
9. $13 - 10i$
10. $7 + 23i$
11. $9 + 12i$
12. $-120 - 4i$
13. $-6 - 5i$
14. $4 - 12i$
15. 0
16. $-3 - 24i$
17. $9i$
18. $2 + 4i$
19. $28 - 7i$
20. $43 - 76i$
21. $8 - 18i$
22. $32 + 12i$
23. $7 + 22i$
24. $12 - 14i$
25. $15 + 18i$

Challenge Problems

1. Addition does not affect exponents.
2. Add the real parts of the complex numbers, then add the imaginary parts of the complex numbers.

3.



4. $a = 20, b = 4$